REMARKS

Claims 1-6 were pending in this application, of which claim 2 is canceled and claim 3 amended to include its subject matter. Claim 6 is amended to overcome the § 112 rejection. Claims 1 and 6 are similarly amended to recited that the discharging portion is thinner at its tip, a tapered shape. This amendment is supported at page 7, lines 15-16 of the specification, and in Figs. 1-2.

Thus, claims 1 and 3-6 stand for consideration in this application. In response to the official action:

[1] Claim 6 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite.

The amendment changes "*the* proximal end" to "*a* proximal end."

[2] Claims 1-6 are rejected under 35 U.S.C. §102 as being anticipated by Riitano '979.

The Examiner asserts that features of claims 1 and 6 are anticipated.[1] However, Riitano does not disclose that the discharging portion of the nozzle is formed so as to become thinner at the tip in a tapered shape (recited in amended claims 1 and 6).

Applicants' Object

As described in the Applicants' "Background of the Invention," drug syringe of claim 1 is used for periodontal disease treatment. The claimed syringes are used for injecting a drug into a

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1 The Applicants understand that the rejection asserts that "a nozzle which is freely detachable with said nozzle mounting portion" is anticipated by the "endodontic irrigator tip 20" described by Riitano; "a mounting portion on the proximal end side which is provided with means for mounting to said nozzle mounting portion" is anticipated by Riitano's "body 24 of hub 22 of the tip 20"; and "a discharging portion which extends bending at a predetermined angle from this mounting portion" is asserted to correspond to the "neck 40 of the hub 22 and cannula 60 extending from stop end 44 of neck 40".

periodontal pocket to remove periodontpathic bacteria that propagate inside the periodontal pocket (page 1, lines 21- 24 of the specification). And the nozzle of claim 6 is used for the same periodontal disease remedy.

If a conventional drug syringe is used for the above-mentioned purpose, there is a danger that the nozzle falls off when a substance of a high viscosity is injected (see page 3, lines 8 - 10 of the specification). However, in the case of the present claims 1 and 6, the discharging portion of the nozzle is formed so as to become thinner at the tip in a tapered shape. Accordingly, the present claims have the advantage that a substance of a high viscosity can be injected.

Riitano

On the contrary, Riitano discloses an endodontic irrigator tip which features a stop for preventing the placement of the irrigator tip past a desired location (see lines 9-11, column 3). Therefore the tip 20 of Riitano includes a hub 22 and a cannula 60 couples to the hub 22. The hub includes a neck 40 having a distal stop end 44 which ensheathes the proximal portion of the cannula 60. The distal stop end 44 is angles with respect to the longitudinal axis of the hub. The stop end 44 prevents the insertion of the cannula 60 beyond a desired distance, thereby preventing perforation of the apex 14(84) of the root canal 12(82). The stop end 44 has a substantially greater diameter than the diameter of the cannula 60.

Thus, the stop end 44 of the neck 40 rests on the occlusal surface of the crown of the tooth while the cannula 60 extends the desired distance within the root canal 12(82). And the cannula 60 is substantially straight. Please see abstract and claim 14 of Riitano.

As mentioned above, in the endodontic irrigator tip 20 of Riitano it is essential that the hub 22 has a substantially greater diameter than the diameter of the cannula 60, that the hub 22 includes a neck 40 having a distal stop end 44, and that the cannula 60 is substantially straight.

Riitano Cannot Be Modified Without Destroying Its Function

In Riitano it is not possible to form the above-mentioned neck 40 and the cannula 60 thinner at the tip in a tapered shape, as now claimed. If (for the sake of argument) the neck 40 and the cannula 60 of the tip 20 of Riitano were formed so as to become thinner at the tip in a tapered shape, then the distal stop end 44 of the neck 40 could not rest on the occlusal surface of the crown of the tooth. But the purpose of the tip 20 of Riitano is that the cannula 60 extends to a desired distance within the root canal, and the stop end 44 prevents the insertion of the cannula 60 beyond a desired distance, thereby preventing perforation of the apex 14(84) of the root canal 12(82). That purpose could not be achieved if Riitano were so modified (which is not suggested).

Riitano's Exact Teachings Are Contrary to the Rejection

The following text taken from Riitano clearly teaches that, in the tip 20 of Riitano, the neck 40 and the cannula 60 cannot be formed so as to become thinner at the tip in a tapered shape:

"The neck has an integral distal stop end for preventing the placement of the irrigator tip past a desired location "(lines 23-24, column3);

"The distal stop end of the neck has a diameter that is substantially greater than the outer diameter of the cannula, such that the stop end acts as an integral stop to prevent penetration into a root canal by the endodontic irrigator tip beyond the length of the portion of the cannula extending from the stop end of the neck" (lines 54-59. column 3);

"Neck 40 also has a distal stop end 44 opposite proximal end 42 which is the distal end of the hub. Distal stop end 44 has a flat distal face 46" (lines 24-26, column 5);

"Cannula 60 has an outer diameter which permits insertion of cannula 60 into a root canal of a tooth. Additionally, cannula 60 is sufficiently flexible to be advanced within any root canal" (lines 44-47, column 5);

"In addition, distal stop end 44 of neck 40 has a diameter that is substantially greater than the outer diameter of cannula 60. Thus, as shown in FIG. 4, the stop end 44 acts as an integral stop to prevent penetration into the root canal 82 of endodontic irrigator tip 20 beyond the length of the portion of cannula 60 extending from stop end 44 of neck 40. As shown, the practitioner is able to strategically, conveniently position stop end 44 on the rim of the occlusal surface of a crown and orient cannula 60 in a controlled manner within root canal 82. As used throughout this specification and the appended claims, the phrase "substantially greater than the outer diameter of the cannula" or a similar phrase refers to a diameter of stop end 44 which is at least about twice as great as the outer diameter of cannula 60. Accordingly, the outer diameter of stop end *44* can, for example, be about 5, 10, 25, 50, etc. times greater than the outer diameter of cannula 60" (line 63, column 6 to line 12, column 7);

and the Examiner is especially invited to note,

"The stop prevents apical perforation since only the portion of cannula 60 extending from the stop can be inserted into the root canal, whereas a face with a tapered configuration would slide into pulp chamber 46, thereby allowing perforation of apex 84" (lines 21-25, column 7).

Thus, the drug syringes of present claims 1 and 6, with discharging portions becoming thinner at the tip in a tapered shape, are neither disclosed nor suggested by Riitano.

Dependent Claims

In regard to claims 3 to 5, these are allowable by their dependence from claim 1, which is allowable as is argued above, and for the following additional reasons:

The Examiner applies Riitano at column 5, lines 19-22, for the features of claim 2 (now incorporated into claim 3) and claims 3-6.

This passage of Riitano a luer lock as one alternative,[2] but it discloses no particular structure for a luer lock. Claim 3 recites that the nozzle mounting portion comprises a distal end tip that engages with the inner cavity of the nozzle and female threads which are disposed concentrically on the outside of the distal end tip, and said female threads are constituted so as to screw together with male threads disposed on the proximal end of the nozzle, and that is not disclosed.

With respect, the feature of claim 4, that the female threads are integrally formed with the barrel, is not at all disclosed by Riitano.

Especially, there is no support for the Examiner's statement that the feature of claim 5, that the female threads are disposed in a freely rotatable condition on tho outer wall of the barrel, is disclosed.

In view of the aforementioned amendments and accompanying remarks, the claims are believed to be in condition for allowance. Withdrawal of the rejection and allowance of all claims is requested.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned, "VERSION WITH MARKINGS TO SHOW CHANGES MADE".

2Starting at line 15, it reads, "Hub 22 can be coupled to means for delivering fluid to tip 20. Examples of the means for delivering fluid to tip 20 include a syringe, a ratcheting device which increases in pressure upon ratcheting to deliver liquid, or a threaded plunger. Hub 22 further includes means for coupling proximal end 26 of hub 22 to tho fluid delivery means, such as male or female Luer lock component, or a standard thread which mates with another thread."

In the event this paper is not timely filed, then this paper is a petition for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper may be charged to Deposit Account No. 01-2340. Favorable consideration and allowance are respectfully solicited.

Respectfully submitted,

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Enclosure: Version With Markings to Show Changes

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VERSION WITH MARKINGS TO SHOW CHANGES

IN THE CLAIMS

1. (Amended) A drug syringe comprising:

a barrel which is provided with a nozzle mounting portion at a distal end thereof;

a plunger which is provided with a gasket capable of sliding hermetically along an inner wall of the barrel at a distal end thereof and inserted from a proximal end of said barrel; and

a nozzle which is freely detachable with said nozzle mounting portion,

wherein said nozzle includes a mounting portion on the proximal end side which is provided with means for mounting to said nozzle mounting portion and a discharging portion which extends bending at a predetermined angle from this mounting portion, said discharging portion being formed so as to become thinner at a tip thereof in a tapered shape.

3. (Amended) The drug syringe according to claim [2,] 1, wherein the nozzle mounting portion comprises a distal end tip that engages with the inner cavity of the nozzle and female threads which are disposed concentrically on the outside of the distal end tip, and said female threads are constituted so as to screw together with male threads disposed on the proximal end of the nozzle, and the nozzle mounting portion of the nozzle and the nozzle mounting portion of the barrel are formed so as to comprise a luer lock.

6. (Amended) A nozzle for a drug syringe comprising:

a mounting portion on [the] a proximal end side which is provided with means for mounting to a tip of a barrel; and

a discharging portion which extends bending at a predetermined angle from this mounting portion, said discharging portion being formed so as to become thinner at tip thereof in a tapered shape.